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# (12) UK Patent Application (19) GB (11) 2 297 893 (13) A

(43) Date of A Publication 21.08.1996

(21) Application No 9602545.7

(22) Date of Filing 08.02.1996

(30) Priority Data

(31) 29503332 (32) 20.02.1995 (33) DE

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(51) INT CL<sup>6</sup>

A43B 17/18 // A43B 13/38

(52) UK CL (Edition O )

A3B B3A B3B

(56) Documents Cited

EP 0130093 A WO 93/13685 A US 5438768 A

(58) Field of Search

UK CL (Edition O ) A3B

INT CL<sup>6</sup> A43B

ONLINE DATABASE: WPI

## (54) ATTACHING INSOLES

(57) An insole (10) to be secured against displacement inside a shoe has on its flat underside, a Velcro (R.T.M.) fastener comprised of two Velcro portions (11,12), in which one of the two Velcro portions (11,12) is rigidly connected to the insole (10) and the other portion (12) is provided with an adhesive (14) for the connection with the shoe. The insole may be for shock absorbtion, leg length compensation or relief of calcaneal spur.

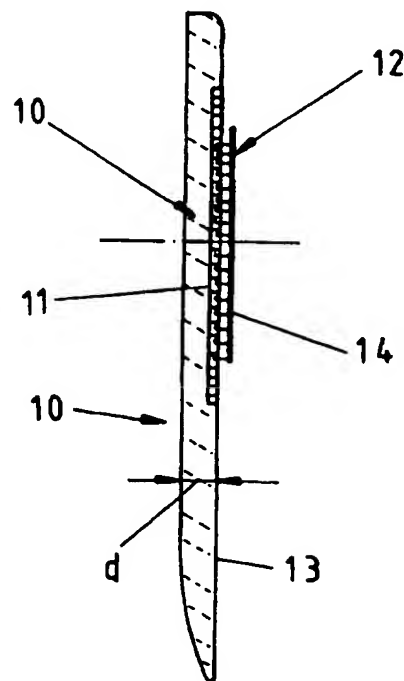


Fig. 2

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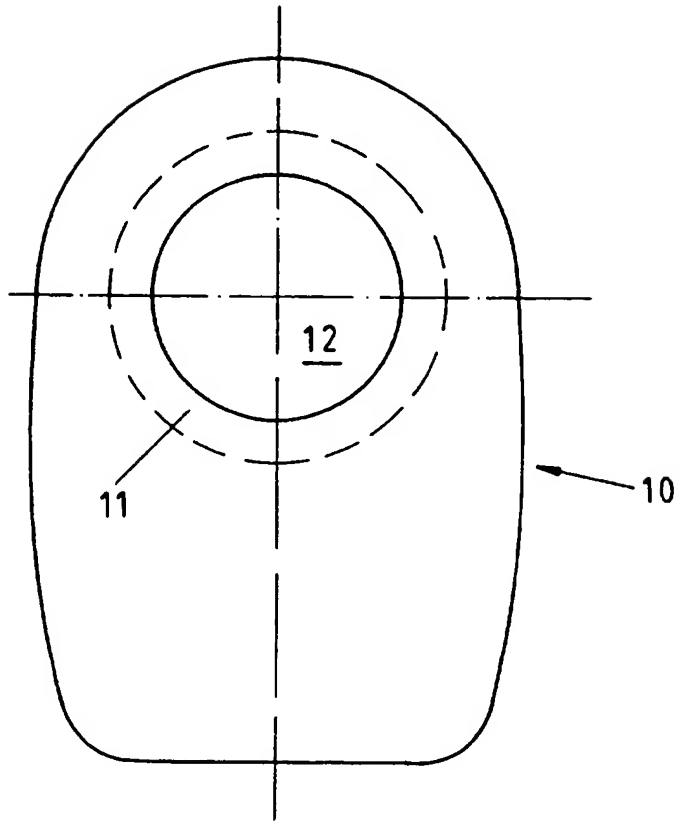


Fig. 1

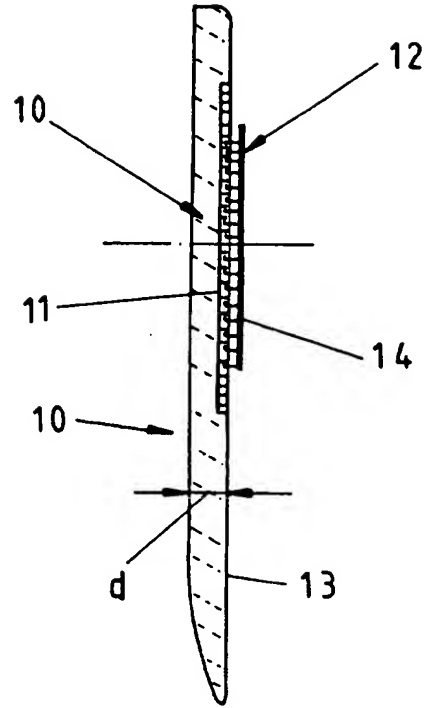


Fig. 2

Fig. 3

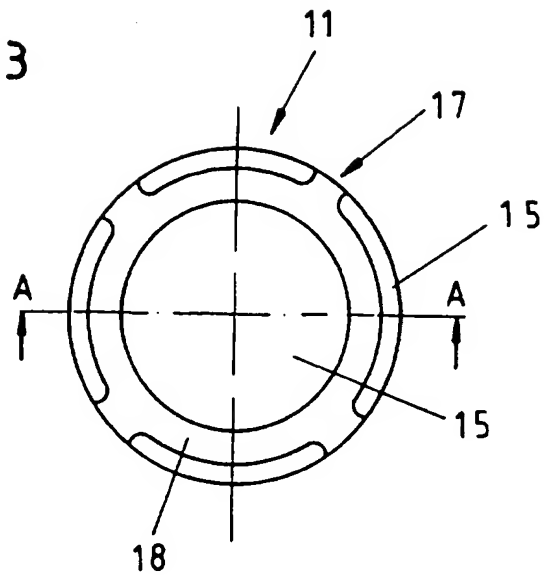
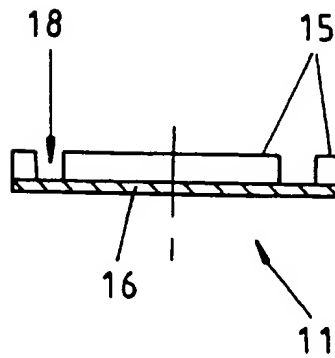


Fig. 4



I N S O L E

The invention relates to a supporting insole, more particularly in the form of a shock absorber, leg length compensator, shock absorber with calcaneal spur relief or suchlike.

BACKGROUND OF THE INVENTION

In orthopedics, insoles are indispensable aids which, however, are only capable of performing their function fully if they constantly assume the same position in relation to the shoe. If the insoles slip out or are displaced from their position inside the shoe, then this is not merely vexatious for the wearer but, on account of the malpositions of the foot, also damaging in the long run.

That is why it is the technical problem of the present invention to provide an insole which is protected against a displacement inside the shoe.

SUMMARY OF THE INVENTION

This technical problem is resolved by means of the insole described in the Claim 1, which is characterized in that, on its flat underside, it possesses a Velcro (R.T.M.) fastener comprised of two Velcro portions, one of the Velcro portions being rigidly connected to the insole and the other portion, on the side located opposite the Velcro fastener side, possesses a side that is provided with an adhesive for the connection with the shoe.

The insole according to the invention possesses the following advantages. — Not only is the insole protected against slipping out of position or displacement, but, by means of the Velcro fastener, detachably connected

to the shoe. That is why it is possible to remove the insole with the first portion of the Velcro insert from a shoe, where a corresponding Velcro insert is rigidly connected to the shoe. Since it can be constructed so as to be flat, the Velcro fastener allows itself to be integrated into the insole without difficulty so that the Velcro fastener does not have an irritating effect.

Further developments of the invention are described in the subclaims. The adhesive is preferably applied in the form of a film adhesive which is covered by a detachable strip film. This can be realized in the simplest manner in such a way that a double-sided adhesive tape is affixed to one Velcro portion, whereby the externally located side is covered in the form of an originality fastener. This originality fastener is peeled off from the shoe prior to the pertinent Velcro portion being attached so that the exposed adhesive tape side can be secured to the inside of the shoe by being lightly pressed against the same.

The Velcro fastener portions are by preference substantially designed so as to be round, the round portions are obtained by being stamped out.

In order to additionally prevent that the Velcro fastener portion has an irritating or detracting effect, at least the Velcro portion rigidly connected to the insole is embedded in a recess of the insole. When the Velcro fastener portions are interconnected, the film adhesive preferably terminates substantially flush with the surface of the insole, i.e. the two Velcro fastener portions are completely integrated into a respective, pertinently adapted recess of the insole.

For stability-related reasons, according to a further development of the invention, the Velcro fastener portion rigidly connected to the insole is provided with a supporting substrate, by preference of plastic, which possesses a larger diameter than the Velcro connection surface and whose marginal regions are rigidly connected to the insole by being cast integrally with the same. By means of this type of attachment it is avoided that the Velcro fastener portion rigidly connected to the insole can be wrenched out when the Velcro fastener is opened. The annular anchoring region, which is achieved by it being integrally cast with the insole, is preferably approximately 5 mm wide.

The insole is comprised, as is known in principle from the state of the art, of silicone, which has proved its worth as a soft and flexible material. As already mentioned in the foregoing, a film which adheres to both sides is employed as film adhesive for the Velcro fastener portion which is in connection with the insole, which is connected by being adhesively affixed to the Velcro portion.

Such a fastener is selected as Velcro fastener which, on one of the Velcro portions, possesses locking claws and, on the other Velcro portion, a felt covering, which is mechanically lockable by means of the locking claws.

#### BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment example of the invention is illustrated in the drawings. Thus

F i g. 1 shows a top view onto the underside of the insertion;

F i g. 2 shows a side view of the insole according to Fig.1;

F i g. 3 shows a top view onto the Velcro portion rigidly connected to the insole, and

F i g. 4 shows a side view of this portion according to Fig.3.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The insole 10 depicted in Fig. 1 possesses an arc-shaped configuration adapted to the heel, as is known in principle from the state of the art. The insole 10 is comprised of a flexible soft material, such as silicone. The thickness D is adapted to the orthopedic requirements of the wearer, e.g. in the form of a leg-length compensator. The insole, within the rearward heel region which is strongly acted upon by shearing strain, possesses a recess, wherein both the first Velcro portion 11 as well as the corresponding Velcro portion 12 are embedded. At least when subjected to compressive strain, the underside 13 of the insole terminates flush with the external part 14 of the second Velcro portion 12. On their reciprocally facing sides (see Fig.2), a detachable Velcro connection exists between the portions 11 and 12, in which case the Velcro portion 11 rigidly connected to the insole 10 possesses locking claws 15 and the corresponding Velcro portion 12 possesses a felt covering on the Velcro connection side. This felt is covered by a double-sided adhesive tape which, on the surface 14, is covered by a detachable strip film.

As becomes apparent from the Figs. 3 and 4, the first Velcro portion 11 possesses a supporting substrate 16, from which said locking claws 15 project, by preference in such a fashion that both lateral inflow ducts 17 as well as also an annular region 18 interrupt the locking



claws. For the fabrication of the insole according to the invention, a first Velcro portion 11 prepared as per Fig.3 is inserted into a prepared recess of the insole, following which, with the aid of a hot die while utilizing the lateral inlet duct 17, the silicone flows into the inlet duct or ducts 17 and the annular region 18 in such a way that the substrate 16 and the external locking claws 15 are covered by the silicone and form a rigid connection with the same. The central area of the locking claws 15 remains uncovered and is accessible from the outside. The complementary portion 12, which is comprised of a strip of felt, upon which, on its exterior, a double-sided adhesive tape is attached which, in the direction toward the surface 14, is covered with a strip film, can now be pressed against the central area, whereby the Velcro connection illustrated in the Figs. 1 and 2 is established. It is in this manner that the insole is distributed to retailers, orthopedics, doctors, etc.

The user will first of all detach the second Velcro portion 12 from the first Velcro portion 11, while the covering film on the surface 14 still remains on the second Velcro portion. Following this he would, after having peeled off the covering film with the surface 14, on which the adhesive tape side is now exposed, affix this second Velcro portion centrally in the shoe so that this second Velcro portion is rigidly connected to the heel area of the shoe. After that he is able to insert the insole into the shoe, in which case both Velcro portions 11 and 12 form a detachable connection which effectively prevents a displacement of the insole.

In order to be likewise able to connect the inside in another shoe, it will be necessary for a second Velcro portion 12 to be attached within the heel region of the shoe, this is recommended so as to avoid having to detach the Velcro portion 12 from the first pair of shoes. It is thus possible to change the silicone insole from shoe to shoe, whereby in each case, rigid connections between the Velcro portions are provided.

\* \* \* \* \*

WHAT IS CLAIMED IS:

1. Insole (10), more particularly in the form of a shock absorber, leg length compensator, shock absorber with calcaneal spur relief or suchlike, characterized in that the insole (10), on its flat underside (13), possesses a Velcro<sup>(R.T.M.)</sup> fastener comprised of two Velcro portions (11,12), in which one of the Velcro portions is rigidly connected to the insole (10) and the other portion (12), on the side (14) located opposite the Velcro fastener side, possesses a side provided with an adhesive for the connection with the shoe.
2. Insole according to Claim 1, characterized in that the adhesive is applied in the form of an adhesive film which is covered by a detachable strip film.
3. Insole according to either Claim 1 or 2, characterized in that the Velcro portions (11,12) are substantially round.
4. Insole according to any of Claims 1 through 3, characterized in that at least the Velcro portion (11) which is rigidly connected to the insole (10) is embedded in a recess of the insole (10).
5. Insole according to any of Claims 1 through 4, characterized in that, in the interconnected Velcro portions (11,12), the adhesive film terminates essentially flush with the insole surface (13).

6. Insole according to any of Claims 1 through 5, characterized in that the Velcro portion (11) rigidly connected to the insole (10) possesses a supporting substrate (16), by preference of plastic, which possesses a larger diameter than that of the Velcro connection region and whose marginal regions are rigidly connected to the insole (10) by means of integral casting.
7. Insole according to Claim 6, characterized in that the annular anchoring region (18) possesses a width of approximately 5 mm.
8. Insole according to Claims 1 through 7, characterized in that the insole (10) is comprised of silicone.
9. Insole according to any of Claims 1 through 8, characterized in that the adhesive film is a double-sided adhesive film which is connected to a Velcro portion (12) by means of adhesive affixation.
10. Insole according to any of Claims 1 through 9, characterized in that the Velcro fastener (11,12) is comprised of locking claws (15) underneath a felt.
11. Insole substantially as hereinbefore described with reference to the drawings.



Application No: GB 9602545.7  
Claims searched: 1-11

Examiner: John Graham  
Date of search: 28 March 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): A3B

Int Cl (Ed.6): A43B

Other: ONLINE DATABASE: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0130093 A1 (BOURDIN) see eg Fig 2	1,10
X	WO 93/13685 (BAUER) see elements 18,36 Fig 2	1
X,P	US 5438768 (BAUER) see col 2 line 65 - col 3 line 4	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.